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CENTER FOR REPRODUCTION OF ENDANGERED SPECIES

REPORT
FALL 2001

Joining Forces to Save Vietnam's Lorises

Story and Photos by Helena Fitch-Snyder, Research Manager, Behavioral Biology/CRES, Loris Species Coordinator and International Studbook Keeper/American Zoo and Aquarium Association (AZA)

The beautiful tropical forests of Vietnam are home to a surprisingly wide variety of rare and endangered animals. Among the least studied are two closely related primate species: the pygmy loris *Nycticebus pygmaeus* and its larger relative, the slow loris *Nycticebus coucang*. Vietnam is one of only a few countries where both species inhabit the same forests.

Pygmy loris

Lorises are unique nocturnal primates that have been the subjects of a wide range of ongoing CRES research projects, including studies of reproductive behavior, olfactory communication, endocrinology, genetics, and virology. We have also had outstanding reproductive success from three different loris species, with a total of 43 lorises born at our off-exhibit research facility during the past 13 years.

But in spite of all we have learned about lorises in captivity, there is still very little known about them in the wild. Unfortunately, lorises are becoming increasingly rare due to habitat loss and the illegal pet trade. Surveys of primate distribution in recent years indicate that their numbers are seriously decreasing and their habitats are becoming more degraded. For these reasons, we realized that it was important for us to expand our efforts to include field research and conservation in the lorises' native habitat of Vietnam.

Slow loris

I had the extraordinary privilege of going to Vietnam in February and March of this year to conduct our first loris field survey. My Vietnamese collaborators included biologists from the Vietnam National University and the Institute of Ecology and Biological Resources (IEBR) in Hanoi. Our survey team also included local wildlife officials, guides, porters, cooks, and camp guards. The success of this challenging survey was primarily due to the dedicated efforts of Professor Vu Ngoc Thanh, who was able to acquire the necessary permits and make all the logistical arrangements to conduct this study.

Our survey area was in the Ben En National Park, which is located approximately 125 miles south of Hanoi. The park contains a large lake with more than 23 islands and peninsulas. The vegetation in our survey sites consisted mainly of hardwood trees and mixed bamboo. We reached our survey site after several adventurous days of travel by jeep, boat, and on foot. Along the way, local hunters, rangers, wood gatherers, and traders were interviewed so we could identify loris habitats and learn how humans impact the local primate population. We explored all the suitable trails during daylight, returning after dark with our headlamps in the hopes of spotting the distinctive orange eyeshine of lorises.

I was thrilled to be the first on our team to achieve success! My first wild loris was spotted about 30 feet above the ground in a local hardwood tree, and I was able to follow it for more than 20 minutes before it disappeared. We found

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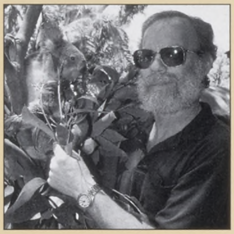
CRES® is operated by the Zoological Society of San Diego.

New Giant Panda Exhibit Remodel Opens
State-of-the-art facility is now ready for pandas and scientists. See page 3.



New Division Head Joins CRES
Dr. Fred Bercovitch heads up the Behavioral Biology Division. See page 5.

Celebration Is Just Around the Corner!
Save the date for Swingin' Safari on September 22. See back cover.

Joining Forces to Save Vietnam's Lorises

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Vietnam's intriguing primate species are benefiting from recent research surveys. Author Helena Fitch-Snyder was joined by Vietnamese biologists in Ben En National Park, south of Hanoi, for a challenging study that lasted several weeks and covered dense forest terrain.

a total of eight pygmy lorises during our night surveys. Our team was especially appreciative of this success, because we were unable to detect signs of any of the other five primate species that have historically lived in this forest. We also discovered disturbing evidence of wood poaching, hunting, and animal collecting.

During our survey, a group of three pygmy lorises and one slow loris was confiscated from local animal traders. We took this opportunity to measure, photograph, and collect hair samples for genetic analysis before releasing these lorises back into the forest. I was very interested to discover that one of these pygmy lorises was pregnant, because it indicated that the birth season found in the San Diego research colony is similar to that of pygmy lorises in the wild. I was also amazed to see that the slow lorises found in this location were a unique variety, with long, fluffy, silver fur and distinctive dark patches around their eyes.

As with other countries, the economic needs of the Vietnamese people often come in conflict with the conservation needs of their precious wildlife. The Zoological Society of San Diego recognizes this challenge and has supported conservation programs for other Vietnamese primates, such as the endangered douc langurs. Now we are initiating some new conservation and education programs by developing loris conservation posters, publishing a Vietnamese translation of a loris husbandry manual, and creating educational materials for local schoolchildren. These are all part of a long-term conservation and research plan, which we hope will help protect all Vietnamese primates.

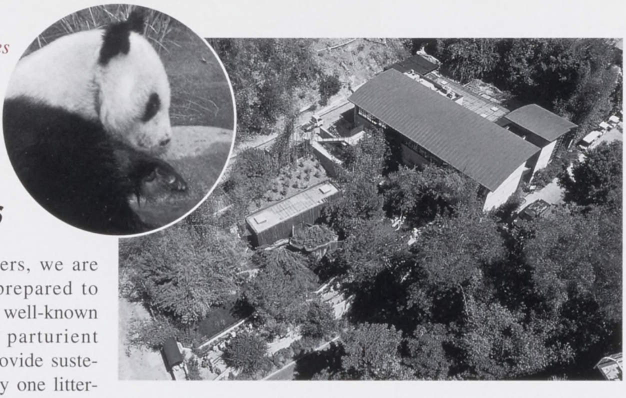
Although there are still many difficult challenges to address in this region, it is exciting to be a part of these efforts. The spectacular Vietnamese forests still hold a wealth of unique wildlife, and it is important for us to learn about these fascinating animals and to assist with their continued survival. I am eagerly looking forward to our upcoming survey in southern Vietnam, which is planned for later this year, because each such project advances much-needed primate conservation.

Special Speakers: Field Conservation Projects

Find out how friends and members of the Zoological Society of San Diego help support conservation projects around the world and hear experts in the field give in-depth information about what it is like to help animals in the wild.

On October 3, Helena Fitch-Snyder, research manager with the CRES Behavioral Biology Division, will speak on the survey she just completed on pygmy lorises in Vietnam. The first Westerner to visit this part of Vietnam, it took her days just to arrive at her research site. Seeing her first wild loris after 30 years of study made it all worthwhile.

This informative and entertaining program includes a slide presentation, cookies, and a hot beverage. The fee for a Special Speakers program is $12 per person, ages 12 and up. Each program takes place in the San Diego Zoo's Otto Center Auditorium from 7 to 8:45 P.M. Reservations are required—call (619) 557-3969 for a brochure and registration form.



The generosity of the Moores family made possible the remodel of the Zoo's giant panda exhibit.

Up-scale Living for Our Giant Pandas

On July 4, two of our three pandas were given access to the newly remodeled exhibit portion of the Pacific Bell Giant Panda Research Station. Female Bai Yun was left behind in the temporary quarters, given the possibility of a pregnancy. The initial reaction of the two relocated pandas to their new exhibit was markedly different. As predicted, male Shi Shi's first foray was somewhat restrained, with the quest for bamboo and biscuits clearly his highest priority. Hua Mei, on the other hand, at 22 months of age, reveled in the novelty of new trees, shrubs, and a pool of water, going full tilt for at least the first two hours of the day. By the third day, like a child with a new toy, much of the novelty had worn off, but still she engaged in occasional bouts of robust activity.

Improving the life experience of our pandas was one objective of the changes that have been under way at the Research Station since last fall. Larger accommodations and a "friendlier" terrain, offering increased opportunities for climbing and exploring, add up to enriched living for the pandas while simultaneously improving esthetics and the viewing experiences of our visitors.

A new nursery building was added, designed to facilitate caring for future offspring and to allow earlier public viewing of life in the den. Should twins appear in future litters, we are now better prepared to deal with the well-known tendency of parturient females to provide sustenance for only one littermate. Under these circumstances, human rearing or cub swapping every second or third day, as practiced in China, would offer a chance at survival for any neglected twin. Further behind the scenes are additional bedrooms and sunrooms, increasing holding capacity for the Research Station to as many as seven or eight individuals. The old exhibit areas have been retained, although not open for viewing, and garden rooms were expanded in size. Still to be completed are large hillside pens of about 8,500 square feet, intended as the arena for future breeding and where pandas can find solitude as required. Here, too, the scientific staff can carry out its work in a quiet, naturalistic habitat.

Every area is equipped with video cameras, affording animal care staff with monitoring capabilities and researchers with options for enhanced data collection. Video recording plays an important role in our scientific work, as seen during the denning phase for Hua Mei in 1999. Modest adjustments to the interior garden rooms will enable us to test pandas for color vision and for further studies of scent discrimination and other cognitive skills.

In keeping with our emphasis on research and education, a discovery center will provide the visitor with up-to-date information on giant panda biology and on the research of CRES scientists in China and at home. Not to be slighted is a beautifully designed, first-of-its-kind office complex that houses the new CRES division of Giant Panda Conservation. A data laboratory for scientists and workspace for observers is provided, along with the housing of video elements used in data collection and analysis. A conference room will provide a meeting place for distinguished guests and for the Giant Panda Team to have its meetings.

Combining quality living for the pandas with good conditions for scientific work and for visitor pleasure is a great challenge in designing captive facilities. We hope all will agree that at the "new" research station these goals have been met in a remarkable way.

– Donald G. Lindburg, Ph.D.
Head, Office of Giant Panda Conservation

CRES Grants

The Center for Reproduction of Endangered Species is grateful to the following generous donors for their support of imperiled wildlife.

The Amerman Family Foundation gave a major grant toward the support of three CRES postdoctoral fellowships for golden monkey and giant panda, black rhinoceros, and Komodo dragon studies. **The Offield Family Foundation** awarded a grant to CRES that will allow the Virology/Immunology Division to purchase a sequence detection system and centrifuge for immediate use and for the planned Arnold and Mabel Beckman Center. **The Edyth Bush Charitable Foundation** has made possible the purchase of a biologic HR system for the Virology/Immunology Division. **The James S. Copley Foundation** gave a grant that will enable the Endocrinology Division to replace old, outdated equipment with a five-channel detector system. **The Butcher Fund** gave toward an elephant endocrine study. **The John and Beverly Stauffer Foundation** recently gave a grant in support of the gorilla genetics study at CRES, and the **Invitrogen Corporation** funded needed supplies for the Genetics Division. **The Hugh and Emily Morris Foundation** made possible the purchase of a mobile molecular lab for the CRES Genetics Division. The Hawaii Endangered Bird Conservation Program received grants from **The McInerny Foundation, The Hawaii Community Foundation**, and the **Tesoro Hawaii Corporation. The J.W. and Ida Jameson Foundation** has given a grant to the Ecology and Applied Conservation Division in support of butterfly farming programs. **The Institute of Museum and Library Services** awarded to Dr. John Phillips, CRES deputy director, a matching grant in support of Komodo dragon research.

Bud Heller Conservation Fellowship: Monitoring Native Snakes at the San Diego Wild Animal Park

Established by the Heller Foundation of San Diego in memory of the late Bud Heller, a longtime friend of the Zoological Society, the Bud Heller Conservation Fellowship is awarded annually to an individual who will be carrying out conservation research on one or more species found at the San Diego Wild Animal Park.

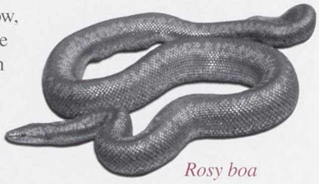
Of the 1,800 acres that comprise the San Diego Wild Animal Park, more than half are undeveloped, consisting largely of pristine coastal sage scrub vegetation. This expanse of natural habitat provides us with unique and unparalleled opportunities for scientific study. It is well protected, located within the county's planned preserve system, bordered by a broad spectrum of adjacent uses, and contains a variety of habitat types, including coastal sage scrub, riparian areas, and live oak woodland. By understanding more about how native animal species utilize the natural areas surrounding the Wild Animal Park, we can begin to develop sound management plans that will ensure their survival into the future. As stewards of one of the largest remaining tracts of coastal sage scrub habitat in San Diego County, the Zoological Society is committed to taking a leading role in local habitat preservation, as well as communicating the importance of San Diego's native biodiversity.

Jeff Lemm

Dr. Tracey Brown uses radiotelemetry to locate and recapture native snakes and gain critical information on their ecology.

The natural lands that are part of the Wild Animal Park currently support 16 species of native snakes, more than any other site that has been surveyed in Southern California to date. This remarkable assemblage attests to the quality of the habitat in our care and to its importance for regional conservation efforts. Because they are both predators and prey, snakes represent a key link in the food chain, and they play an important role in regulating populations of a suite of other native animals, including rodents, lizards, and raptors. This amazing diversity of snakes, along with the pristine nature of the open space at the Wild Animal Park, presents a rare opportunity to obtain information critical to the conservation of snakes throughout Southern California.

Red diamond rattlesnake



Rosy boa

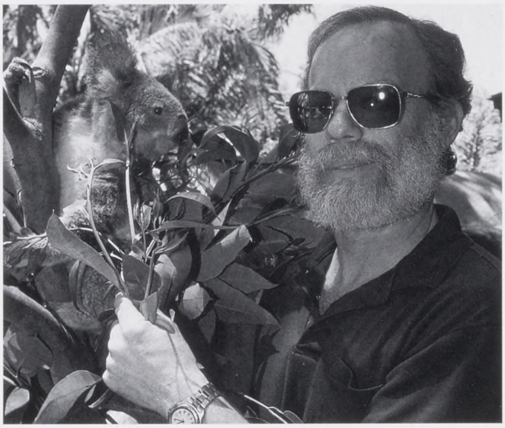
This year's Bud Heller Fellow, Dr. Tracey Brown, came to the Zoological Society with a strong interest and background in conservation of Southern California reptiles. She completed her Ph.D. dissertation research at the University of California at Los Angeles on the physiological ecology of the desert horned lizard, and she spent many years investigating the impact of military training activities on the biology of desert tortoises and other threatened reptiles at the Fort Irwin Army Base. Working with Dr. Allison Alberts, and assisted by Zoological Society staff from CRES and the Reptile and Veterinary Services departments, Tracey has spent the last year using radiotelemetry to follow two native snake species, rosy boas and red diamond rattlesnakes, throughout the natural lands at the Wild Animal Park.

Radiotelemetry is a valuable technique that allows biologists to repeatedly locate the same individual over time. With each successive recapture, information related to the movement patterns and habitat use of an animal is gained. This information allows us to determine critical conservation parameters such as habitat requirements, home range size, and dispersal abilities of these snakes. So far, Tracey has found that male rattlesnakes have much larger home ranges than their female counterparts, particularly in the spring months, when they are searching for mates. While the rattlesnakes show high site fidelity and use the same winter denning sites each year, the home ranges of rosy boas appear to be expanding over time.

Another focus of Tracey's work is to understand the behavior of snakes located near roads or habitat edges. Automobiles kill thousands of snakes each year, and roads can lead to the inadvertent introduction of exotic plant and animal species. By determining the effects of roads and habitat edges on snake behavior, we can improve reserve designs to minimize negative influences.

– Allison Alberts, Ph.D.
Head, CRES Ecology and Applied Conservation Division

New Division Head Joins CRES



The CRES staff welcomes Dr. Fred Bercovitch, who serves the Zoological Society of San Diego as a senior scientist and head of the Behavioral Biology Division at CRES. His major research focus is the evolution of reproductive strategies, analyzed using a comparative approach that incorporates behavioral ecology, genetics, and endocrine physiology. Fred is responsible for supervising behavioral research on endangered species at the San Diego Zoo, the Wild Animal Park, CRES, and field sites overseas.

Born in Los Angeles, Fred grew up in the Santa Monica/Venice beach area. His academic career in behavioral biology began with a study of nonhuman primates while an undergraduate at the University of California at Berkeley. Afterwards, he received a Master's degree from Arizona State University and a Ph.D. from the University of California at Los Angeles. Fred lived for three years in Kenya, conducting his dissertation research on the sexual and social behavior of baboons. Then he was awarded a National Institutes of Health Postdoctoral Traineeship at the Wisconsin Regional Primate Research Center, where he studied the developmental neurobiology and reproductive endocrinology of captive rhesus macaques. Before arriving at CRES, he conducted research on rhesus macaques and patas monkeys in Puerto Rico.

Fred has received grants from the National Science Foundation, the National Institutes of Health, the H. F. Guggenheim Foundation, and other sources, and he has supervised several students in conducting independent research projects that have led to advanced degrees. Fred serves as an ad hoc reviewer for a number of federal and private grant agencies, as well as for many academic journals. He has authored or coauthored more than 100 articles, book chapters, papers, and abstracts presented at scientific meetings throughout the world.

In his leisure time, Fred enjoys hiking and camping, reading and drawing. He and his wife, Denise, have two sons, Jason and Aaron, and reside in San Diego.

Why Give to the Zoological Society of San Diego?

Reasons abound from aardvarks to zebras, but here are a few personal benefits for you to consider:

Feel good! You make a significant contribution to support the Zoological Society's mission of conservation, education, and recreation. You may direct your contribution to CRES, an exhibit, program, or an endowment—or leave it to the discretion of the Zoological Society.

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Status! You may become eligible for exclusive membership in our Circle of Finest Friends.

For more information on how you can make a contribution to the Zoological Society, please contact the Development Office at (619) 231-1515, extension 4245, or write to P.O. Box 120551, San Diego, CA 92112.

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CRES REPORT

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Join the Celebration Migration!

21st Annual Celebration for the Critters

Saturday, September 22, 2001
7:30 P.M. to midnight
Tickets: $75 (or $90 after September 7)

Swing and Sway the Night Away:

- **Destination:** The vast Zoo party plains.
- **Be a VIP!** Levels begin at only $150, featuring a sensational Safari Preview Party from 6 to 7:30 P.M.
- **Serengeti Oasis and Monkey Bar:** Experience delectable provisions from San Diego's finest restaurants and beverage vendors.
- **Sounds of the Wild:** Swing to the beat of the Rhythmakers, the Big Daddy Orchestra, and Indigenous Earth.
- **Safari Auction:** Roar your bids on fabulous treasures.
- **And Zoo-o-o Much Fun:** Skyfari expeditions, wildlife sightings, safari merchandise bazaar, roving photographers, opportunity drawing, and a visit from San Diego Zoo Goodwill Ambassador Joan Embery and her critters.

Swing through the trees and call (619) 231-1515, ext. 4199, for ticket and VIP information. Tickets will be mailed for those reservations received by September 7 (all other tickets will be held at the door). Guests must be 21 or older to attend. Children and strollers are not permitted.

Proceeds benefit CRES, the Zoological Society of San Diego's Center for Reproduction of Endangered Species, and its field conservation efforts in the USA and around the world.

Visit our Web site for the latest Celebration information:
www.sandiegozoo.org/society/celebration2001/index.html.

Go Ape!

Center for Reproduction of Endangered Species
Zoological Society of San Diego
CRES REPORT

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